



arm

TFM metrics reporting using SQUAD

What is SQUAD ?

- SQUAD (Software Quality Dashboard) :
 - Project by Linaro
 - Open source (<https://github.com/Linaro/squad>)
 - Displaying the results of a Continuous Integration (CI) tool :
 - Build status (Pass / Fail)
 - **Build metrics**
- The goal of this tool is to follow the evolution of any TF-M metric. We took the file size of the binaries generated by TF-M as an example :
 - Tfm_s.axf (bss / data / total size)
 - bl2.axf (bss / data / total size)

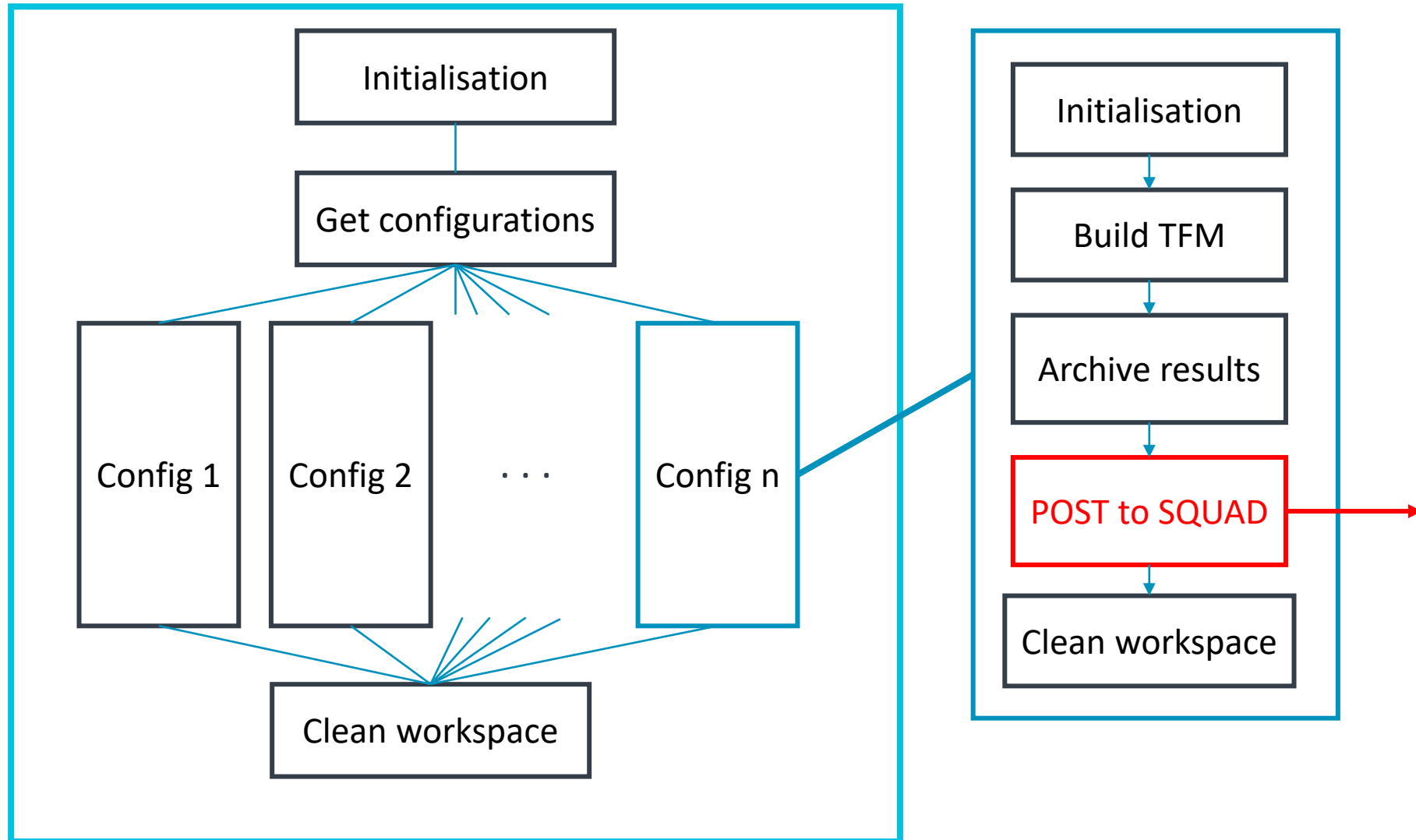
Data is sent from CI

- Nightly build (1 execution every night – No manual trigger)
- Data saved as a json file
 - Saved as an artifact of the build
 - Sent to the SQUAD Interface via a curl request
- Available configurations (selected via CI parameters) :
 - **Default**
 - **CoreIPC**
 - **CoreIPCTfmLevel2**
 - DefaultProfileM
 - DefaultProfileS
- AN521 + GNUARM toolchain

```
{  
  "bl2_size" : 44488,  
  "bl2_data" : 240,  
  "bl2_bss" : 25104,  
  "tfms_size" : 193416,  
  "tfms_data" : 448,  
  "tfms_bss" : 62932  
}
```

Example json file

Details about CI sending the data



Demo

- <https://qa-reports.linaro.org/tf/tf-m/metrics>
- Pre-initialised graphs : https://qa-reports.linaro.org/tf/tf-m/metrics/?environment=CoreIPC&environment=Default&environment=CoreIPCTfmLevel2&metric=bl2_size&metric=tfms_size&range_bl2_size=0,100&range_tfms_size=0,100

Improving this tool

(<https://review.trustedfirmware.org/admin/repos/ci/tf-m-ci-scripts>)

- The main file to modify is a python script (**memory_footprint.py**)
- Adding new metrics :
 - Calculate the desired new metric from the python script
 - Adding it to the json file
- Selecting new configurations (within the existing ones) :
 - Can be done from CI's parameters
- Creating new configurations (different build parameters / platforms / toolchains) :
 - The python script identifies the configurations, it should be modified to identify new configurations
 - The new configurations should be selected from the CI parameters

```
{  
  "bl2_size" : 44488,  
  "bl2_data" : 240,  
  "bl2_bss" : 25104,  
  "tfms_size" : 193416,  
  "tfms_data" : 448,  
  "tfms_bss" : 62932,  
  "new_metric" : value  
}
```

Example json file

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Thank You

Danke

Gracias

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

شكرًا

ধন্যবাদ

תודה